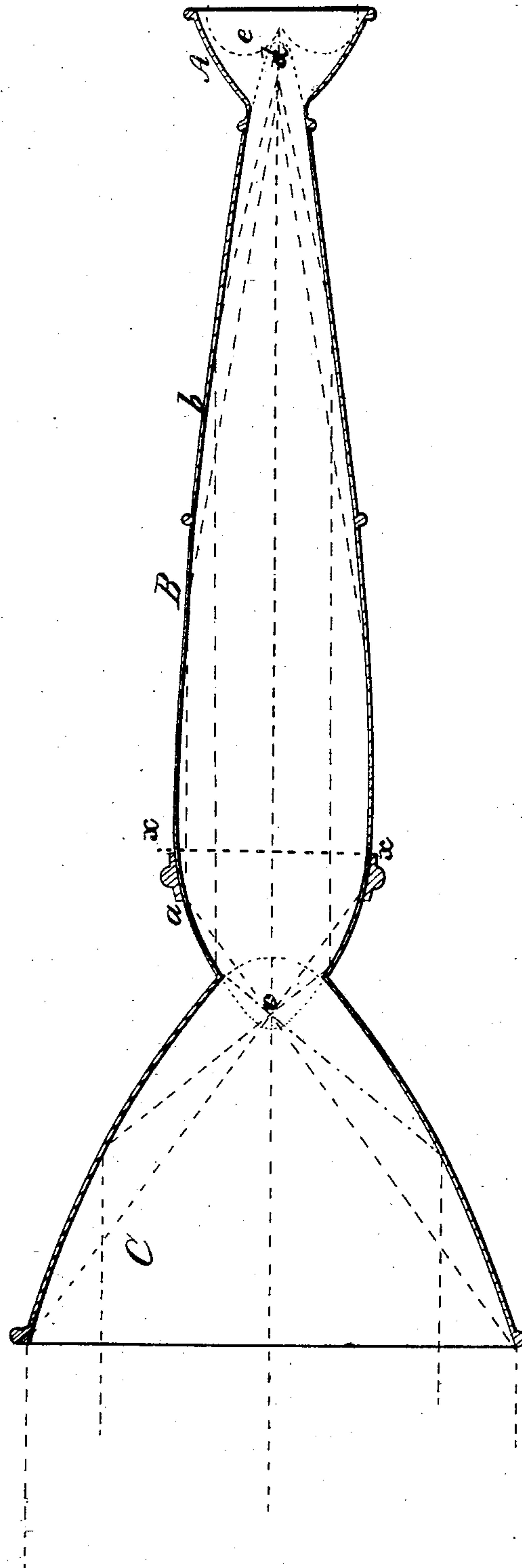


W. STAEHLEN.  
FIREMAN'S TRUMPET.

No. 20,961.

Patented July 20, 1858.



# UNITED STATES PATENT OFFICE.

W. STAEHLEN, OF WILLIAMSBURG, NEW YORK.

## FIREMAN'S TRUMPET.

Specification of Letters Patent No. 20,961, dated July 20, 1858.

*To all whom it may concern:*

Be it known that I, WILLIAM STAEHLEN, of Williamsburg, in the county of Kings and State of New York, have invented a new and  
5 useful Improvements in Speaking-Trumpets Designed more Particularly for Firemen; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed  
10 drawing, making part of this specification, in which drawing a longitudinal central section of my improvement is represented.

This invention consists in constructing the body of the trumpet and also the flaring  
15 terminus or end-piece each of paraboloidal form, and placed in such relation to each other and to the mouthpiece as hereinafter shown and described, that sound will not only be projected from the flaring endpiece  
20 in parallel lines of vibration, thereby sending the sound a greater distance than when it is allowed to diverge, but the instrument is also rendered available as an ear-trumpet, thereby combining two instruments in one,  
25 both of which are essential for an officer of a fire company, one to give the necessary orders sufficiently loud to be heard distinctly above the din and confused noise attending every fire, and the other to aid in hearing  
30 when at a distance the strokes of the alarm-bell in order to ascertain the district in which the fire exists, and also to aid in hearing the orders of the chief-engineer and superior officers.

35 To enable others to fully understand and construct my invention, I will proceed to describe it.

A, represents the mouthpiece of the trumpet; B, the body; and C, the flaring  
40 terminus or end-piece. This end-piece is of paraboloidal form, as shown clearly in the drawings; and the body B may be termed as being of double paraboloidal form, that is to say, formed of two paraboloids  $a$ ,  $b$ , joined  
45 base to base as shown by the line  $x$ ,  $x$ . The endpiece C, and the adjoining portion  $a$ , of the body B, having a common focus  $c$ ; and the focus  $d$ , of the portion  $b$ , of the body B, is within the mouthpiece A.

50 It will be seen by referring to the drawing that neither of the paraboloidal portions of the trumpet have a closed terminus, the bore or interior of the trumpet precluding this.

When the mouthpiece of the trumpet is 55 applied to the lips  $e$ , (shown in red color,) said lips will be about at the focus  $d$ , of the paraboloidal portion  $b$ , of the body B, and the sound escaping from the lips in diverging lines of vibration will be deflected by the  
60 paraboloidal portion  $b$ , to the sides of the paraboloidal portion  $a$ , and thence through the focus  $c$ , to the sides of the paraboloidal endpiece C, the sound being deflected from the latter surface in parallel lines of vibration; see red lines. The sound, in consequence of being thus projected, will be conveyed a much greater distance than when  
65 allowed to diverge.

From the above description it will be seen 70 that as sound emanating from  $d$  is deflected from the several surfaces  $b$ ,  $a$ , into the paraboloidal endpiece C, and thence in parallel lines, it follows that if sound be projected into C, the effect will of course be inversely  
75 the same, the sound concentrating at  $d$ ; and hence, by applying the mouthpiece A to the ear, an ear-trumpet is obtained. This is the "feature" of the invention, as previously  
80 stated, viz., the adaptability of the instrument to either purpose. If a speaking trumpet were only required, the paraboloidal body B, and mouthpiece A would be sufficient; but an ear-trumpet must collect a  
85 large volume of sound and concentrate it to a point at or near the ear, and hence the paraboloidal endpiece C, is indispensably necessary.

I am aware that paraboloidal end-pieces have been applied to trumpets, and I do not  
90 claim such devices; but I am not aware that an end-piece and body, each of paraboloidal form, have been previously used in the construction of speaking trumpets.

I therefore claim as new, and desire to secure by Letters Patent—

The end-piece C and body B, constructed in paraboloidal form, and arranged relatively with each other and the mouth-piece A, substantially as and for the purpose set  
100 forth.

WILLIAM STAEHLEN.

Witnesses:

C. S. NEWELL,  
C. B. BARKLEN.